



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

DOT-E 8178
(FIFTH REVISION)

FEB 28 2001

EXPIRATION DATE: January 31, 2003

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: National Aeronautics and Space Administration,
(NASA)
Washington, DC
2. PURPOSE AND LIMITATION:
 - a. This exemption authorizes the transportation in commerce of certain non-DOT specification cylinders containing oxygen, compressed. This exemption provides no relief from any Hazardous Materials Regulation (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.302(a) in that non-DOT specification cylinders are not authorized except as specified herein; and § 173.34(d) in that pressure relief devices are not required except as specified herein.
5. BASIS: This exemption is based on the application of the National Aeronautics and Space Administration dated February 8, 2001, submitted in accordance with § 107.109.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Oxygen, compressed	2.2	UN1072	N/A

FEB 28 2001

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification cylinder conforming with one of the following designs:

(1) Filament wound reinforced plastic (FRP) aluminum lined cylinder described as a portable oxygen storage system (POS) or a portable life support system (PLSS). The liner must be made of 6061-T6 alloy from 2 seamless impact extruded hemispheres welded to form a cylinder or sphere. The overwrap must be resin impregnated Kevlar 49 filament roving. The POS cylinder must comply with Hamilton Standard SVHS 7840 with a volumetric capacity of 67 cubic inches and a rated service pressure of 3670 psi at 120°F. The PLSS cylinder must comply with Hamilton Standard SVHS 7811 having a volumetric capacity of 240 cubic inches and a rated service pressure of 1050 psi at 120°F.

(2) Stainless steel cylinders consisting of two formed and machined hemispheres welded to a cylindrical section described as a portable life support systems (PLSS). The cylinder must conform to specification SVHS 2840 Rev. E and applicable referenced standards with a volumetric capacity of 240 cubic inches nominal, and a rated pressure of 1050 psig at 70°F. The cylinder must also conform with United Technologies' drawing SV 784099 Rev. E. These cylinders need not be equipped with safety relief devices. Only 38 cylinders made to this design may be used under the terms of this exemption.

b. OPERATIONAL CONTROLS: Only 60 FRP aluminum lined cylinders and 38 stainless steel cylinders made in accordance with terms of this exemption (and application) may be used under the terms of this exemption. Prototype cylinders must have been tested and passed the qualification tests as noted in the application prior to first shipment.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this exemption who receives a package covered by this exemption may reoffer it for transportation provided no modifications or changes are made to the package and it is reoffered for transportation in conformance with this exemption and the HMR.

FEB 28 2001

- b. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.
 - c. The FRP cylinder described in paragraph 7.a.(1) of this exemption may not be used after 15 years from the date of manufacture or 375 pressurizations, whichever comes first. The steel cylinder described in paragraph 7.a.(2) of this exemption may not be used after 25 years from the date of manufacture or 375 pressurizations, whichever comes first.
 - d. The cylinders must be used exclusively as a component of the space shuttle program.
 - e. Each cylinder must be shipped in strong outside packagings in accordance with § 173.301(k).
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo aircraft only.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each aircraft used to transport packages covered by this exemption. The shipper must furnish a current copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Registration required by § 107.601 et seq., when applicable.

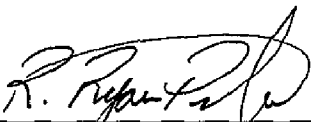
Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

FEB 28 2001

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued in Washington, D.C.:



for Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

FEB 28 2001

(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.
Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, S.W., Washington, DC 20590-0001, Attention: Records Center, 202-366-5046.

PO: cwf/sln